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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,736	10/31/2001	Christophe De Vleeschouwer	IMEC227.001AUS	2689

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EXAMINER
CZEKAJ, DAVID J

ART UNIT	PAPER NUMBER
2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/08/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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	Application No.	Applicant(s)
Office Action Summary	10/001,736	VLEESCHOUWER, CHRISTOPHE DE
	Examiner .	Art Unit	
	Dave Czekaj	2621	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>20 November 2006</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-58</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>37 and 38</u> is/are allowed.

6) ☒ Claim(s) <u>1-9,11-26,28-36 and 39-58</u> is/are rejected. .

7) ☒ Claim(s) <u>10 and 27</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some *   c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

On pages 16-18, applicant argues that Adiletta fails to disclose the characteristic

being determined by prediction without using the first sub-encoded block as claimed.

While the applicant's points are understood, the examiner respectfully disagrees. See

for example Adiletta equations 3A and 3B in lines 50-54 in column 13. There Adiletta

discloses a predicted characterization which is computed using pixels in the current and

previous frame. The result is not computed using the first sub-encoded block.

Therefore the rejection has been maintained.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-4, 6-8, 11-12, 16, 19-22, 24-26, 28-31, 33, 36, and 39-58 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Kim (5777680) in view of Adiletta et

al. (6760478), (hereinafter referred to as "Adiletta").

As for claims 1, 2, and 21 Kim teaches of dividing the part of the current frame

into blocks (Kim: Column 6, Lines 43-45); performing a first sub-encoding on a first

block or set of blocks (Kim: figure 1, column 6, lines 40-49. Note: first sub-encoding

involves the DPCM, MC, and controller); performing a second sub-encoding on the first

sub-encoded block or at least one block of the first set of blocks, the second sub-

encoding adapting at least one encoding parameter based upon a quantity of the first

sub-encoded part of the current frame, the quantity being determined by prediction at

least in part from of the frames of the sequence only those frames that are a reference

frame (Kim: figure 1, column 6, lines 49-64. Note: second sub-encoding process

involves the DCT and Q blocks); and performing the first sub-encoding and the second

sub-encoding on another block or set of blocks of the part of the current frame (Kim:

figures 1-2. Note: the process is continuous). However, Kim fails to disclose the

second sub encoding having a characteristic indicative of an energy content as claimed.

Adiletta teaches that prior art solutions are ineffective at providing a real-time two-pass

compression algorithm (Adiletta: column 3, lines 1-3). To help alleviate this problem

Adiletta discloses a two-pass encoding method which "adapts at least one parameter

based upon a characteristic indicative of an energy content, the characteristic being

determined by prediction without using the first sub-encoded block at least in part on

only those frames that are a reference frame" (Adiletta: column 13, lines 27-34).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to take the apparatus disclosed by Kim and add the encoding

taught by Adiletta in order to obtain an effective real-time compression algorithm.

As for claims 3, 8, and 22, Kim teaches of computing of the quantity identifies the

time elapsed between the current frame and the reference frame or frames (Kim:

column 4, lines 51-60. Note: the quantization parameter calculated from parameters

obtained from the first encoding step is directly reliant on the picture rate (i.e. frame

rate) and therefore this would give the time between frames).

As for claims 4, 26, and 31, Kim teaches of the encoded frames are transmitted over a transmission channel and wherein the adaptive encoding method compensates for channel bandwidth limitations and adapts the second sub-encoding parameters based at least in part upon the quantity (Kim: column 7, lines 24-42. Note: the buffer controls the transmission of the data to the decoder as is well known in the art, the fullness of the buffer is fed to the control which takes it into account when calculating the quantization parameter).

As for claims 6 and 24, Kim teaches of the second sub-encoding is selected from the group comprising: wavelet encoding, quadtree or binary tree coding, DCT coding and matching pursuits coding (Kim: figure 1, column 6, lines 40-64. Note: DCT coding is used).

As for claims 7, 11-12, 16, 19-20, 25, 28-30, 33, and 36, most of the limitations of the claims are contained in the above rejection of claim 1. Kim teaches of dividing the reference frame into blocks and labeling the blocks of the reference frame in accordance with the performance of a first sub-encoding that is applied to the reference frame (Kim: column 7, lines 1-21. Note: after the reference frame goes through the MC the frame is labeled by the control in DPCM block); computing a quantity based on the labeling of the blocks and from the frames of the sequence only those frames that are a reference frame (Kim: Column 4, Lines 30-67 and Column 5, Lines 1-38).

As for claims 39-58, Adiletta discloses the characteristic is determined prior to buffering the current frame (Adiletta: figure 6B, wherein the characteristic is determined without the use of a buffer).

4.   Claims 13-15, 17-18, 32, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 5,777,680) in view of Adiletta et al. (6760478), (hereinafter referred to as "Adiletta") in further view of Sun (US 5,969,764).

As for claims 15, 18, 32, and 35, most of the limitations of the claims are contained in the above rejection of claims 1 and 7. Kim in view of Adiletta do not explicitly teach of deciding based on the computed quantity to perform or skip encoding the current frame, however, Sun does (Sun: column 8, lines 51-62. Note: as disclosed in Sun, it is well known in the art that skipping a frame or increasing quantization levels are equivalent). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the option of using the computed quantity or skipping the current frame. By skipping the current frame the coder can allow the transmitted stream to "catch up" to the coder without using any bits or allowing the coarseness to become to larger.

As for claims 13, 17, and 34, most of the limitations of the claims are contained in the above rejection of claim 15. Kim does not explicitly teach of the decision step deciding whether the two step encoding method is to be applied to the current frame or not, however, Sun does (Sun: column 8, lines 51-62. Note: the deciding step being whether or not to skip the frame). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the option of using the computed quantity or skipping the current frame. By skipping the current frame the coder can allow the transmitted stream to "catch up" to the coder without using any bits or allowing the coarseness to become to larger.

As for claim 14, most of the limitations of the claims are contained in the above rejection of claim 13. Kim teaches of the encoded frames are transmitted over a transmission channel and wherein the adaptive encoding method compensates for channel bandwidth limitations and adapts the second sub-encoding parameters based at least in part upon the quantity (Kim: column 7, lines 24-42. Note: the buffer controls the transmission of the data to the decoder as is well known in the art, the fullness of the buffer is fed to the control which takes it into account when calculating the quantization parameter).

5.   Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (5777680) in view of Adiletta et al. (6760478), (hereinafter referred to as "Adiletta") in further view of Lee (6023296).

As for claims 5 and 23, most of the limitations of the claim are contained in the above rejection of claims 1 and 20. Kim does not explicitly teach of performing transformation parameter estimation of a block with respect to the reference frame; thereafter performing transformation compensation on the block; and thereafter determining the error block, however, Lee does (Lee: column 3, lines 39-67, column 4, lines 1-7. Note: the motion estimation is put before the motion compensation in order to improve efficiency of the motion compensator and the subtractor will give the error signal). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to add the motion estimator in order to improve the efficiency of the motion compensator.

6.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim

(5777680) in view of Adiletta et al. (6760478), (hereinafter referred to as "Adiletta") in

further view of Krause (5093720).

As for claim 9, most of the limitations of the claim are contained in the above

rejection of claim 7. Although Kim does not explicitly teach of comparing the motion

vectors to determine the labeling, it is considered well known in the art to do so (See

Krause Column 4, Lines 9-22). Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention to compare the motion vectors

because the motion vectors would already be readily available from the motion

estimation processes and therefore would be computationally friendly.

Allowable Subject Matter

7.   Claims 37-38 are allowed.

8.   Claims 10 and 27 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dave Czekaj whose telephone number is (571) 272-

7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJC

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TC 2600